

ABSTRACT

Methods and apparatus for reducing the intensity of hurricanes are described herein. A method may include positioning a fleet of submersibles in an area of ocean through which at least a portion of a hurricane's central core will pass within a predetermined amount of time.

- 5 The submersibles are maneuvered to a depth greater than a depth of a thermocline in this area of ocean. The submersibles maintain their station and depth for a finite amount of time, during which they may release a gas to form bubble plumes which rise toward the ocean's surface. The bubble plumes entrain and upwell cold sub-thermocline water toward the surface of the ocean to cool the surface of the ocean. The cooled ocean surface reduces the intensity of the hurricane

10 whose portion of central core passes through the cooled area. An apparatus to generate a bubble plume may include a gas source, a gas manifold to releasably collect gas from the gas source, and a cover having perforations of a predetermined shape, size, and spacing to produce a predetermined rate of upwelling of seawater. The apparatus may further include a duct to receive at least a portion of the generated bubble plume and channel the cold upwelled seawater toward the surface of the ocean.